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What HumRRO Is Doing

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★ FOREWORD ★

HumRRO was established as a contract research agency by the Department of the Army in August 1951 to fill a gap in the Human Resources Research Program. The mission assigned was to do research in Training Methods, in Motivation, Morale, and Leadership, and in Psychological Warfare. A total of about 100 research scientists are now working in the three divisions of HumRRO's Central Office on The George Washington University campus and in the three OCAFF Human Research Units, for which HumRRO supplies civilian personnel and technical research supervision.

This pamphlet is the first of a series of ***Research Bulletins*** describing, in nontechnical language, a selected group of the research tasks which HumRRO was bringing to completion at the end of 1953. As Army-wide personnel become familiar with what kinds of research HumRRO can do, it is believed that an increasing number of requests for research will be forwarded through channels to the Assistant Chief of Staff, G-1, Department of the Army, who supervises HumRRO's work.

Most of the problems on which we are working are old ones—old in the sense that they have been present in Army training and military management for a long time. Many solutions have been devised by Army personnel. What new can a civilian research agency offer? Only this—a ***disinterested scientific approach to the gathering of facts, the controlled experimental approach with careful measuring devices and the orderly examination of data from a research point of view.*** This approach has been shown to pay off in many fields of military importance, and will continue to prove its worth in the most important single military problem—the training and management of personnel.

This report sketches typical tasks, their method and results to date. It also lists some of the other tasks now under way in terms of the problem being studied. In succeeding bulletins results will be given greater emphasis as the studies are completed. Complete reports on the studies outlined here may be obtained as they become available from the Human Relations and Research Branch, Office, Assistant Chief of Staff, G-1, Department of the Army.

Meredith P. Crawford
Director
Human Resources Research Office

CONTENTS

What HumRRO Is Doing

MOONLIGHT

The problem of accuracy in night firing is a relatively new military problem and a perplexing one.

Today a new mode of training, based on HumRRO research, is enabling the infantry soldier to increase his firing effectiveness under dim illuminations from 50 to 200 per cent, depending upon the types of targets engaged. Against "flashing targets," such as an enemy burp gun or machine gun, the proficiency of trainees or of combat veterans can be increased more than 200 per cent.

Back of a new Training Circular[1] there is a story which well illustrates how military training problems sometimes yield to scientifically organized experiment and analysis.

* * *

The project began for HumRRO with the arrival of a requirement from Office, Chief of Army Field Forces, in four parts:

> "Development of a new methodology for training the individual infantry soldier in night discrimination.
>
> "Development of a new methodology for training the individual infantry soldier in effective night shooting.
>
> "Development and standardization of a transition course for simultaneous training of a number of individuals in night firing.
>
> "Development and standardization of a transition course for training integral squad-sized units in the technique of fire at night."

For the Army, of course, study of night firing had begun years ago, but the problem had not been acute until the Japanese, out-gunned and out-manned in the Pacific, took to infiltration at night. They reversed the centuries-old procedure of European armies; of fighting in the daytime and quitting at night.

[1]Training Circular No. 27, D/A, "Night Firing of M1 Rifle Without Artificial Illumination," 22 Dec 53.

Correct Form! — for night firing....

This photograph of a man aiming his rifle while keeping both eyes open, well above the level of the sights, shows a poor way to fire in daylight, but it exemplifies the revolutionary night firing method developed after HumRRO research. Under conditions of dim illumination, this method increases accuracy up to 200 per cent.

The Army had recognized there were two main approaches to improving night firing—*improve the sights* or train soldiers to *improve their sighting.*

Ultimately, improving the sights had led to elaborate devices such as infrared lighting, which requires putting $450 worth of equipment on a $71 carbine, or telescopes whose optical systems are delicate, heavy, and unreliable in bad weather. Such devices are a heavy load for the soldier and for maintenance.

Various devices costing only a few cents each, such as flash-hiders, a white string down the barrel, or a touch of luminous paint on the front sight, have also been tried, with little success.[2]

An Army officer who had made a "hobby" of the subject first drew attention to aspects of night firing which ultimately led to understanding the sighting errors commonly made at night. Army studies of enemy casualties after night actions showed a high percentage of wounds in head and shoulders. The Army set up a range at Fort Dix, N. J., in which silhouette targets were placed against

[2]Scientific tests of all three devices listed have shown that they do not appreciably improve scores in range firing at night.

a blue cloth, with dim blue-bulb illumination between the silhouette and the background. Firing under these conditions, soldiers consistently hit high and to the left. A training aid was devised to show troops their error.

This work and the HumRRO program show the precise nature of the night marksmanship problem.

At night a soldier needs both eyes open. He may not be able to see the muzzle sight, at least with any accuracy; and if he sees it, with both eyes open, he elevates his piece beyond the usual trajectory. Most soldiers are surprised at how poor their first night-firing scores turn out to be.[3]

IMPROVEMENT IN NIGHT FIRING

(per cent by which the special training increased scores over ordinary training)

Dark Starlight	Bright Starlight	Pale Moonlight
53%	65%	9%

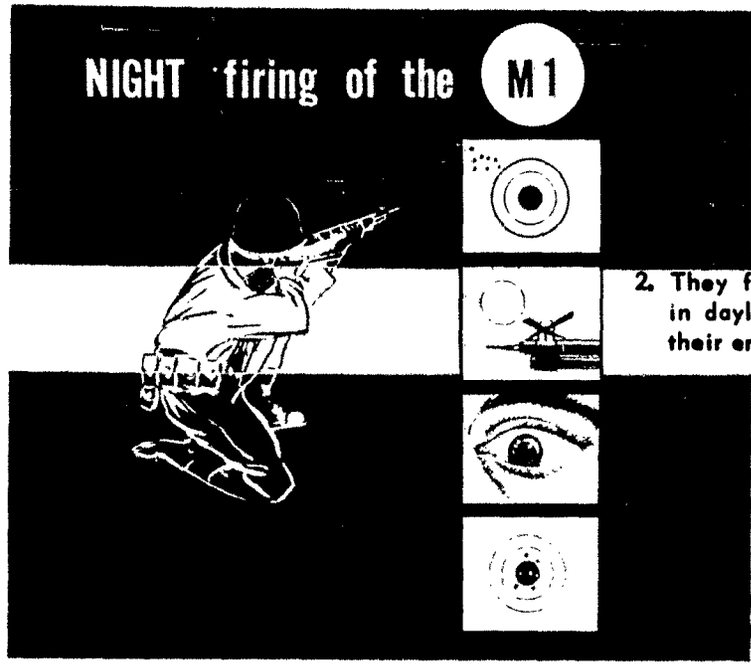
The night firing method finally devised and adopted after HumRRO research at Fort Benning, Ga., and Camp Rucker, Ala., had gratifying results. With 14 hours of training and the firing of 62 rounds, troops improved their night firing 211 per cent on flashing targets, and on ordinary targets under various illuminations as shown in the table.

As these figures show, the new method is most effective in the darker illuminations. Also, distance proved to be a crucial factor in seeing dark targets under dark conditions, but flashing target scores were much the same at various distances; a flash is a precise target for marksmen at much longer ranges than a dark target.

The basic method of the new training is simple. Troops are taken to night-firing ranges and shown that their scores are quite inaccurate. They are then taken to day ranges and required ***to fire rifles which have no sights.*** From these exercises each soldier learns just how far off he is, and thus determines ***his own personal night correction factor.***

Each man fires in the manner that seems most natural to him, but learns that under night conditions he should fire at a certain distance to the right of and below where the target "looks" to him.

[3]Experimentation showed that experienced soldiers could be trained to use a radical departure—firing with the stock held firmly in the center of the chest. With *experienced* marksmen, this method leads to consistently higher scores than any other method, but it is not recommended for training. *Average* troops found it too confusing to depart from the usual method of firing from the shoulder. The method is mentioned here only because it is one more demonstration of where the night-firing error occurs, and because it may have some value in training troops for special operations.



raining has four phases:

fire at night in usual man-eir firing is high and to .

2. They fire a rifle without sights, in daylight; this shows them how their error is made.

are given night vision , useful for other things so effective in improving arksmanship.

of their night correction they fire at night using thod; scores are radically d.

This correction factor varies for the individual soldier. He cannot even describe it very well. It is not certain whether using it is an entirely logical process, in which the soldier calculates that he should be so many degrees off of target, or one in which he "points himself" instead of "pointing his rifle." Men simply say after the corrective firing period, "You get a feel of where you should be."

The system works.

It proves to be less difficult for the average soldier to grasp and to master than the more familiar correction of providing a "lead" when firing on a moving target. How long a man will retain an accurate impression of his personal correction factor has not yet been determined. However, once a soldier understands where the error commonly lies, he will be basically equipped for night firing. He has been *shown* the nature of the problem. His own scores show him how he can surmount it.

The training has an important by-product in the field of morale. The first steps convince the soldier himself of the seriousness of the problem and demolish the dangerous over-confidence which many (including night combat veterans) have on the subject. The almost universal sharp improvement in scores during training then restores a proper confidence.

* * *

The conditions of the study were as rigorous and as close to combat conditions as we could make them.

- **THE TROOPS** in the experimental group consisted of 50 men who had no combat experience, and 50 veterans of night combat in Korea. For comparison, we studied the scores of 200 troops who had no special training. The scores of the combat veterans were further analyzed to compare their performance before and after the special training; the scores leave no doubt that this special training is a decisive factor.

- **THE FIRING RANGES** were specially designed for this experiment and have now been standardized by The Infantry School.

  At ranges from 25 to 75 yards we tested the men on firing at stationary and moving targets under various illuminations. Targets were mounted on carts which traveled on tracks below the surface of the ground. They were not silhouetted against a light background but represented the most adverse conditions, in which the soldier must fire at a target which is "black on black," or "gray on gray."

  At greater ranges, from 85 to 135 yards, we tested the men on stationary targets consisting of a flashing red light, which was dark for a period and then gave off intermittent flashes, which looked like an enemy machine gun or burp gun.

  While the scores improved greatly after training—and combat effectiveness can be increased sharply by raising the number of near hits—the lack of precise hits dramatizes the severity of the night-firing problem, particularly on flashing-type targets. During the firing of 13,821 rounds of ammunition, only four of the small red lights used in the stationary targets were lost.

- **THE ILLUMINATION** for each firing was scientifically measured, in millionths of a foot-candle. Differently trained troops were compared under four lighting conditions: dark starlight, bright starlight, pale moonlight, and bright moonlight.

- **THE TRAINING** found most effective may be summarized in the following four steps:

  1. **Familiarization Firing.** The troops are taken to the range to fire at *night.* Most are surprised at their low scores.

  2. **Corrective Firing.** Using rifles without sights, the troops fire in *daylight,* and learn their correction factor.

  3. **Night Vision Class.** This training, useful in developing other skills, also increases night firing accuracy.

  4. **Application Firing.** Here the troops fire for score.

* * *

The Infantry School has prepared a training circular to put these findings into practice, and the circular has been approved by OCAFF and published by the Department of the Army. This completes the chain... Army observation of the problem, analysis and theory of the nature of the error, testing and experimentation, devising of a training method, testing of the training, and finally use in training for combat.

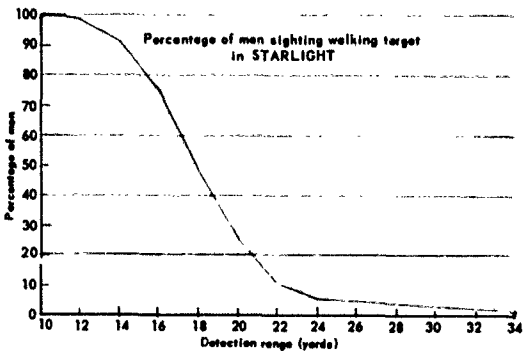
* * *

One of the interesting by-products of the night firing research was the study of how far away a walking infantryman may be seen under dim illumination.

Under starlight illumination only a fourth of the troops tested could discern a soldier walking towards them at 20 yards. At greater distances, 30 yards and 40 yards, only two per cent or none could see an approaching figure.

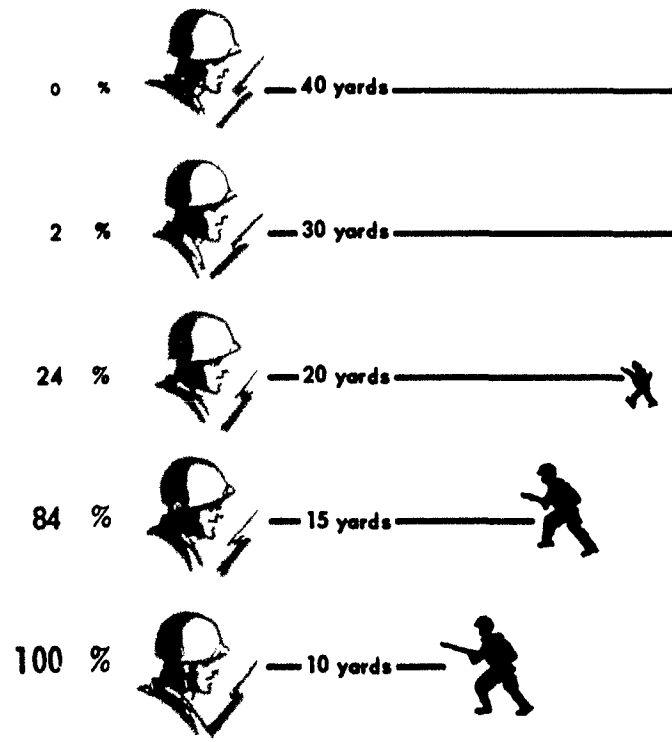
The great value of proper night vision courses and the new training technique which the MOONLIGHT research developed for night firing lies in their increasing the infantryman's efficiency under such adverse conditions.

How Fast Night Visibility Falls Off...



How Close Can The Enemy Get?

Observers Who Detected An Approaching Infantryman by STARLIGHT



Comparable figures by QUARTERMOON were:

Distance (yards)	Detection (%)
100	0
75	2
50	20
25	78
14	100

OCS

Of the men available for OCS, only about one-third apply for OCS training. Of the men sent to OCS, about one-fourth fail at the schools and almost as many resign. Why do so few of the qualified men become officers?

Army quotas for newly commissioned officers were not being met at the time (summer 1952) HumRRO was asked to study the morale and motivation problems involved here. This report deals only with the study's first part, which examined men eligible for OCS to see what they knew about Army officer training, and how they felt about the schools and about being officers.

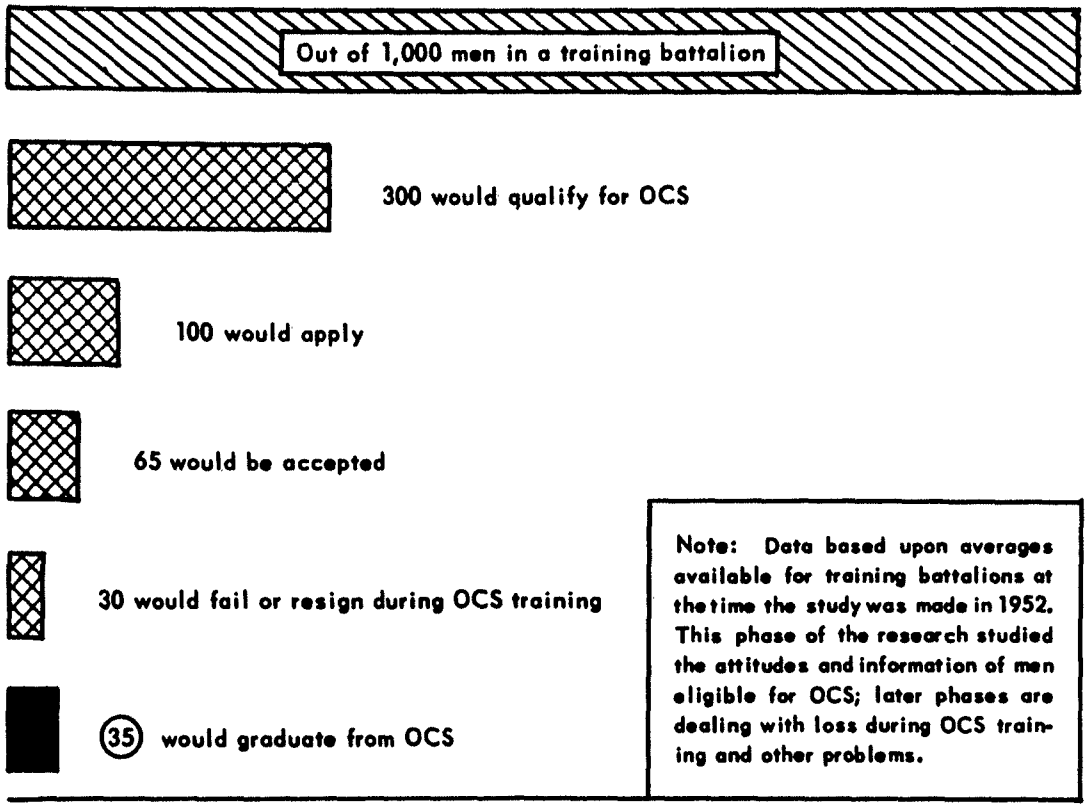
At Officer Candidate Schools two-thirds of all attrition was attributed to two factors: lack of motivation and lack of the quality of leadership. The researchers reasoned that something could be learned about these failures as well as about the low application rates from a study of the attitudes of men eligible for OCS. The program studied a total of 911 men, either in or just through basic training, at four installations.[1] The troops were divided into four categories:

Those who had applied for OCS	148 men
Those who said they planned to apply, but had not yet done so	102 men
Those who were eligible, but did not yet know whether they would apply	236 men
Those who said definitely they would not apply	425 men

The men who, at the time they were contacted for this survey, had not quite gotten to the point of applying or had not yet made up their minds represented a third of the total number studied. Such men, in the later stages of basic

[1]The troops were at Fort Ord, Camp Roberts, and Camp Cooke, Calif., and Fort Knox, Ky.

How Many Basic Trainees Do Go Through OCS?



Note: Data based upon averages available for training battalions at the time the study was made in 1952. This phase of the research studied the attitudes and information of men eligible for OCS; later phases are dealing with loss during OCS training and other problems.

training but not yet committed either for or against OCS, are judged to be a real potential for officer material. It is also possible, of course, that some of the eligibles who had decided against OCS might change their minds if they were shown good reasons for doing so.

Instead of being limited to checking off a set of printed answers, the troops were given a questionnaire that enabled them to express any opinions they held. This "open-end" type of examination makes for more difficulty in scoring papers, but in getting a clear picture of attitudes like these it has been found to be very effective.

The study showed that men eligible for OCS were ***not well-informed about it.*** Not only did direct questions turn up misinformation, but the survey included a specific question as to whether the soldier himself felt his officers had given him good information about officer training. Nine out of ten men said they had not had "ample information" on OCS. These findings suggest that eligible men should be told much more about OCS opportunities.

In expressing their concepts of OCS, the troops overestimated the academic and physical training severity of the schools. On the other hand, they consistently underestimated the leadership requirements, apparently not realizing how many men fail because they are deficient in leadership ability.

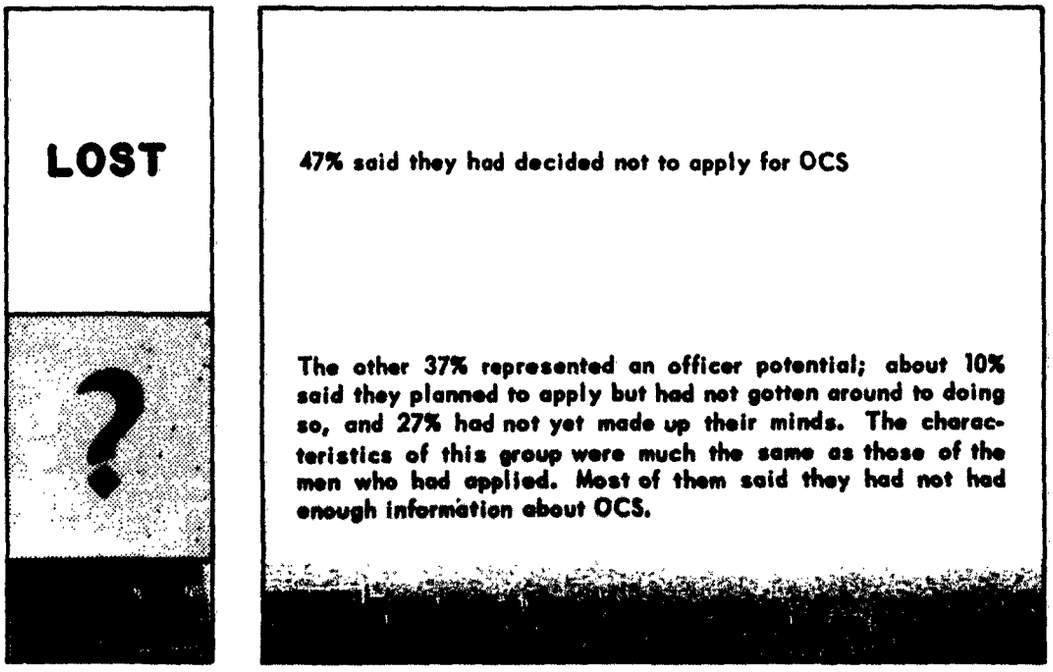
Ninety-eight per cent of the men who had decided not to apply for OCS said they had already decided to return to civilian life at the end of their tour of duty. Of those who had applied for OCS, however, more than a third had not yet decided whether or not to make the Army a career, while nearly half of the "delayed applicants" apparently were still considering Army leadership as a profession. Obviously there is a large fraction of eligibles who might be reached and convinced that Army commissions would be a step toward a lifetime profession.

The men listed a wide variety of what they considered the advantages and disadvantages of becoming an officer. Insofar as these could be summarized, opportunities for self-improvement apparently were most frequently listed as advantages, while extended tour of duty, reserve status, and "responsibility" were most often mentioned as disadvantages.

The four groups showed no differences when compared on the basis of their aptitude tests, marital status, education, and age. These factors evidently

What Are the Plans of Some Typical OCS Eligibles?

Of 911 men interviewed–

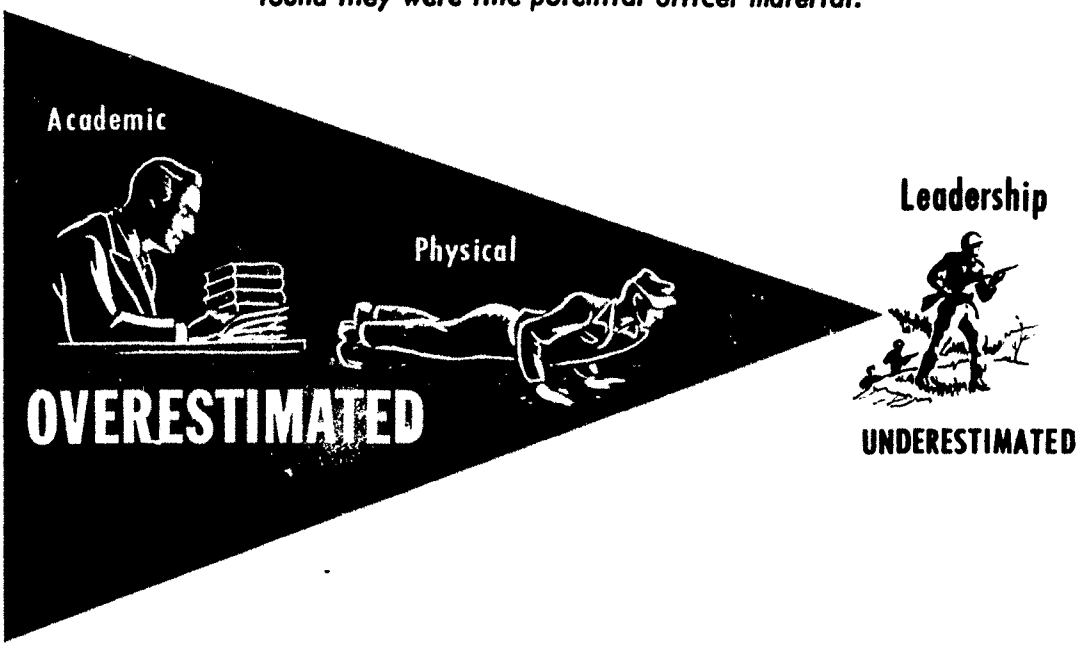


are not influential in determining whether a man decides to go to OCS or not. This sameness among the groups also shows that, so far as intelligence and education are concerned, there is officer material outside which is identical with that inside the schools.

The essential differences between those who apply and those who do not seem to center in initiative and motivation. To some extent personal knowledge of OCS is a factor, for some of the men simply do not know enough about OCS to make the decision that is most suitable for them. Thus the study indicated that *a more widespread knowledge of OCS should result in more applications.*

This preliminary study also revealed that if men could be sure of getting into the branch of their own choosing more of them would be willing to go to OCS. A later part of the research will examine the men's attitudes toward the branch to which they are assigned for officer training, and the effects of these attitudes upon success at OCS. This and other parts of the study, including inquiry into present methods of evaluating candidates, are expected to throw light on the reasons why men do not complete OCS training.

HumRRO studies of men eligible to go to OCS who had not yet applied found they were fine potential officer material.



They proved to have some misconceptions about OCS; in general they overestimated the academic and physical standards of OCS and underestimated the leadership requirements.

WHOLEPART

How should the Army teach men to shoot the M1 rifle?

Hundreds of new ideas and devices have been tried over the years in teaching the basic skills of marksmanship. No method of teaching can ever be judged to be perfect and impossible of improvement, and a lively discussion will no doubt continue to swirl around this topic as long as men must be trained to shoot.

But one of HumRRO's tasks has been to make scientific measurements of different means of instruction, and our researchers believe they have made an important discovery on this subject:

> Trainees taught operation of the rifle as a ***whole***, from picking it up to squeezing the trigger, showed a 61 per cent greater gain in marksmanship over pre-training level than was shown by men instructed with the ***part*** method now used.

The ***Part Method***, typified by the present ATP, divides the firing act into its component parts. The first day of instruction is given over to sighting and aiming, another session deals with the trigger squeeze, and other phases of the firing act are taught in the same way. Live firing comes only after each of the components has been stressed and practiced in isolation.

The ***Whole Method***, proposed and tested in standard training conditions with average trainees, teaches firing as an integrated act; all relevant aspects of rifle firing are combined into a single learning and practice unit. Under the Whole Method of instruction, the trainee goes through the complete firing sequence, including the firing of live ammunition, beginning with his first practice session.[1]

Two basic training companies were used in the experiment, one at Fort Knox, Ky., and the other at Fort Jackson, S. C. Each company was divided into two groups, one taught by the Whole Method and the other by the Part Method.

[1]In another aspect of the research on this method, it was found that use of live ammunition throughout the preliminary instruction improved the skill of trainees more than did "dry firing."

SHALL WE TEACH BY...

The photo above suggests the "part method" of teaching a coordinated action, such as firing a rifle. Is this better than the "whole method," symbolized below, where the operation is taught as a single unit? HumRRO research indicates that it is better *not* to teach the rifle by breaking training down to trigger squeeze, sighting, etc., but instead to place the emphasis on training in complete coordination.

OR

The groups were matched for rifle steadiness, had the same instructors, received the same number of hours of instruction, and fired the same number of rounds of ammunition. Reliability of scoring on the known-distance range was assured through use of special pit scoring crews. Thus researchers made certain that any difference in final proficiency was due to the effectiveness of the instructional methods.

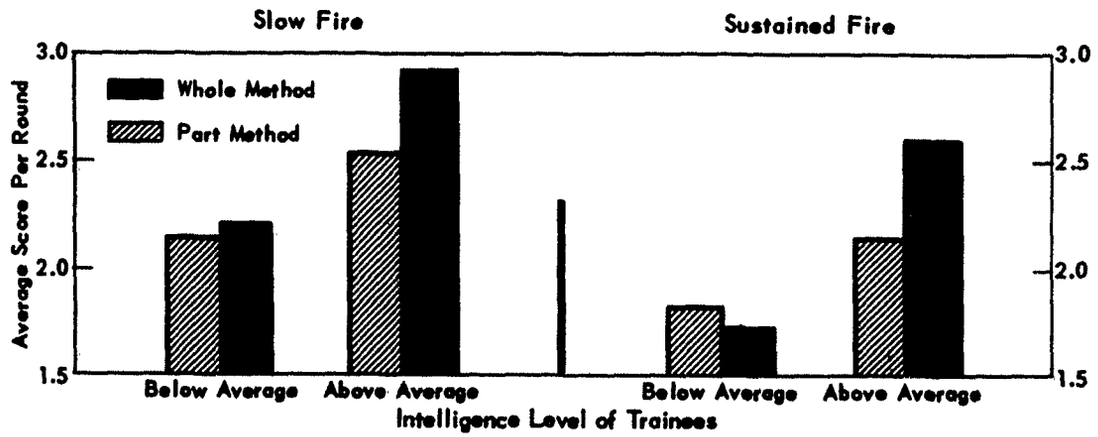
The superiority of the Whole Method of rifle instruction, clearly shown in the regular firing tests, was again evident when the groups were refired on the known-distance range after an interval of two months. This method, then, led not only to greater initial learning but to better retention as well.

Since the ultimate aim of training is to implant skills which will remain, and since every man in the Army receives M1 training and is a potential user of the M1 in combat, such an improvement in the marksmanship skill of the average soldier has enormous significance for the Army as a whole.

Educational psychologists have spent years testing theories on teaching and training, and in many fields they have found that the "whole method" is better than the "part method." They have discovered, for example, that typists who start off preoccupied with individual letters and accuracy tend to remain slow; typists who concentrate on getting out the words reach a high rate of speed and then find their accuracy improving. Orders for guard duty can be memorized far more easily if they are learned ***as a whole*** instead of ***a line at a time.***

We do not claim that this method of teaching can be applied to all military skills. This research showed, however, that the Whole Method works in teaching rifle marksmanship: With the same number of hours of training it will deliver better-qualified riflemen.

The More Intelligent Men Get More Benefit From the Whole Method



DESERT ROCK—Series I, IV, & V

"It is of first importance that the soldier, high or low, should not have to encounter in war things which, seen for the first time, set him in terror or perplexity."

—von Clausewitz

How will troops react to atomic explosions in combat?

Generals and sergeants alike need to know as much about behavior of troops in the vicinity of atomic detonations as it is possible to know before bombs are fired in combat.

To gather scientific data on the emotional and physical reactions of ordinary troops was the purpose of the HumRRO research programs at the atomic maneuvers, Desert Rock I, Desert Rock IV, and Desert Rock V.

* * *

For centuries commanders have dealt with the emotion of fear, for half a century psychology has been organizing information and theory about fear.

The problems raised by the atomic bomb, however, were without precedent in military experience. The studies thus far reinforce the belief that commanders need to know a great deal more about psychological reactions of troops to this revolutionary weapon. The Desert Rock research was directed to find, if possible, answers to such questions as these:

Can special indoctrination have a marked effect on soldiers' emotions and actions before and after an explosion?

We found that indoctrination can be most effective. Much was learned about what kind of indoctrination will help to prepare men to meet the conditions of atomic warfare.

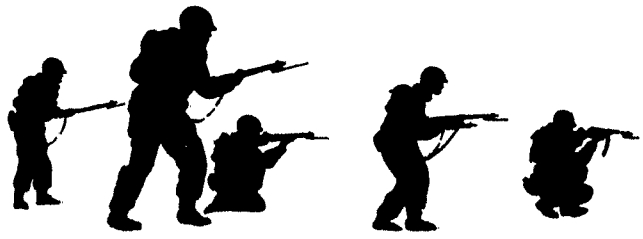
What is the exact nature and extent of the average soldier's fear of atomic weapons?

The answers to this proved to be complicated but very provocative. Often in research the answers one gets merely raise many more questions. You enter a door—and instead of merely finding one room on the other side, you find a long corridor with a great many more doors—and on each door is a question mark.

That was the case here. For example, we had prepared our research to measure fear and lack of confidence. We learned that commanders must also look out for ***over-confidence.*** There is a surprising feeling of exhilaration after an explosion, which might well lead to lack of proper caution. At the same time, we were finding through indirect methods that fear was still there, but had been driven "underground."

What were the soldiers' self-confidence and adjustment to the maneuver situation?

Again the men gave a complicated set of answers. On a question dealing with volunteering for



a more hazardous mission, the percentage of those willing to volunteer went up after the detonation.

To what extent will atomic maneuvers spread accurate information on A-bombs, by word of mouth, through maneuver veterans telling other troops?

Amazingly little information was spread from the atomic-trained troops to the other soldiers studied for purposes of comparison. We had expected to learn something of atomic information as it is distorted by going two or three turns "down the grapevine." Security regulations were no doubt instrumental in keeping talk at a minimum, although the Army did officially encourage troops to discuss the maneuver within security limitations.

Note should be made of the fact that the psychological framework in the Desert Rock maneuvers was far more artificial than in ordinary maneuvers. It is true that when the troops were asked if they thought the maneuvers were realistic enough, approximately four out of five said "about realistic enough to suit me." But the conditions in Nevada did not conform to ordinary maneuvers, much less to truly realistic training methods, such as infiltration courses with live ammunition.

Somewhat similarly, the nature of the maneuvers and the security policies mean that veterans must somehow be encouraged to talk of what they learned, and a great deal of factual information must be embodied in special indoctrination courses. Otherwise the Army can only prepare its men by taking every soldier in it to see a bomb exploded.

As a result of a HumRRO report and subsequent staff action, OCAFF has recommended to the Department of the Army two changes in such exercises for the future:

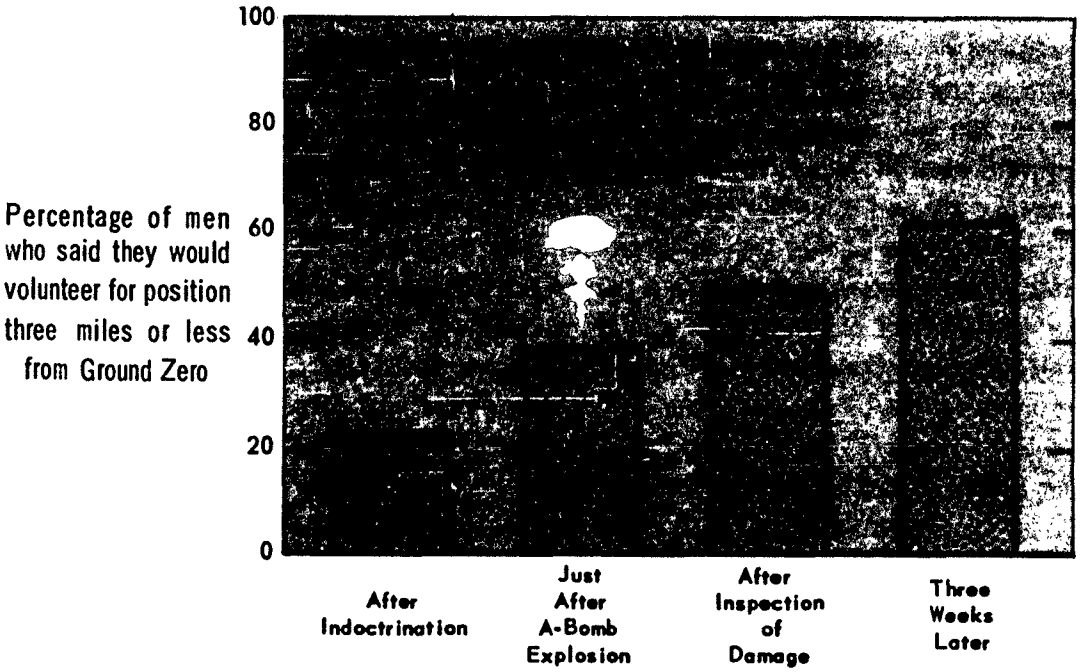
- That they should not be called "maneuvers" but should be known as "demonstrations of phenomena, protective measures, and effects of atomic weapons."
- That the training given enlisted men should be unclassified, with the average soldier being encouraged to talk about what he was told and what he saw.

* * *

To study troops in the Desert Rock maneuvers[1] our researchers first gathered information while the men were at camp before they knew where they were going. Another test was made after the men were briefed at Camp Desert Rock.

[1]Troops in the DESERT ROCK I research were from Fort Campbell, Ky.; those in DESERT ROCK IV from Fort Hood, Tex.; those in DESERT ROCK V from Fort Bragg, N.C.

WILLINGNESS TO VOLUNTEER FOR HAZARDOUS DUTY



The researchers were with the troops waiting for the shots, went into the damage areas after the shots, and recorded the immediate reactions. Later they checked on what the soldiers remembered weeks afterwards. They also, at various stages, studied similar troops who were not undergoing these experiences.

The main methods used were the most modern forms of scientific interviewing—using carefully designed questionnaires as well as the ingenious indirect methods which have been devised to assess hidden emotions.

An indirect but clearly significant measurement was the "volunteering test" given the day after the detonation (DESERT ROCK IV). The men were told by a battalion officer that during the week they would participate in another maneuver with a much larger bomb. They were directed to sign a statement indicating which of two positions they would prefer to occupy: four miles from Ground Zero, as on the day before, or a mile closer to Zero. In this on-the-record test, 33 per cent of the men[2] volunteered to go to the three-mile distance. In an off-the-record anonymous survey a few hours earlier (see graph), 50 per cent had said they would

[2]This group is now being studied to give light on the kind of men who will volunteer for hazardous missions.

volunteer for the three-mile position in "another maneuver exactly like this one" (when they had been four miles away from the blast).

Still more indirect is the "projective test," a method widely used in diagnosis of emotional states of normal persons as well as of patients in mental hospitals. Its essence is to show the subject a picture of people in action, then to have him tell or write a simple comment upon what the people are doing. One picture used at Desert Rock showed troops advancing in combat (see illustration); another showed a mother and two children apparently fleeing from some disaster. The advantage of this test is that it enables the subject to "project" his emotions into someone else, in this case a person shown in a fear-producing situation. This is a refinement of the method already well-known in its ordinary form (and used in the questionnaires); ask a soldier bluntly if he would like a certain thing, and his answer may not ring true. But if you ask, "How will this thing go with the rest of the company?" you may find out what the given soldier thinks, as well as what he thinks others' reactions will be.

Projective tests had never before been administered under field conditions, and their use was experimental. It did not seem too likely that one could ask ordinary soldiers to look at pictures and write "a little story" 15 minutes after they had seen an A-bomb exploded. Nevertheless, the test proved workable. It can be used further to measure military fear and anxiety, as well as other morale factors.

Using the Projective Technique

This picture was one of those used in the Desert Rock projective experiment. Specifically, the test was designed to identify themes of "Threat" and "Fear-Solution" in the stories. It was reasoned that confident men would write things indicating fear but also indicating some solution—some form of action. A soldier with a high Fear-Solution score would be expected to behave better in an emergency than one with a low Fear-Solution score, though both may seem to have the same amount of danger in the situation (i.e., had the same Threat score).

Tests given at various stages showed the mean scores for both *action*-responses and *threat*-responses went up as one would expect, as D-day came closer. The two "curves" on the charts stayed together until the actual moment of the explosion. After that the mean Fear-*Solution* score remained high, while the Threat score reflecting the danger theme went down.

This result is interesting in itself, but it is believed the validation of the method under field conditions is more significant for the future.

In addition to the indirect methods of testing, one physical measure was used. Instruments which measure the amount of sweat in the palm of the hand were tested for usefulness under field conditions. Palmar sweat has been found to be an excellent indicator of nervousness or fear, quite in keeping with the old Army expression, "sweating it out." Through the moments just before and after a bomb test, each soldier held a bag or wore a finger clamp containing harmless chemicals. The chemicals absorb the moisture and give precise measurement of the amount. Troops were tested again the next day for comparison. Results of using these instruments were inconclusive but promising.

* * *

Some general conclusions from the three studies may be summarized:

- There was no evidence that fear made any troops incapable of carrying out their duties just after the detonation of the bomb.
- Troops were found neither more nor less afraid of bomb effects after they had seen the damage in the forward area.
- The proportion of troops who would volunteer to go on another A-bomb maneuver showed a material increase just after a bomb explosion.
- Troops showed marked improvement in information about atomic effects after a four-hour indoctrination. They were most interested and learned most swiftly in the area dealing with possible personal injuries.
- There is evidence that over-confidence *leading to lack of caution* may be the immediate reaction to surviving an atomic blast.
- Information did not go from veterans of the maneuver to the non-veterans to any marked degree. Neither did contact with the atomic-trained troops influence the nonparticipants; their general attitudes and their information on atomic matters remained unchanged.

* * *

WILL ATOMIC ORIENTATION REPLACE

Fear of the Unknown with Fear of the Known?

A special study of the effects of atomic orientation was made at one atomic maneuver.

Modern psychology has learned much about a concept familiar to every seasoned commander: Among all the fears with which soldiers must live, fear of the unknown is in a class by itself.

When the danger is not known, when the enemy is felt to be using a new or unfamiliar weapon, men's imaginations conjure up nameless and shapeless forms as frightening as the actual presence of danger. Thus soldiers face an enemy within as well as across the lines, and uncertainty can grow to panic under the influence of *fear of the unknown*. The antidote is knowledge.

Viewing the revolutionary effects of the atomic bomb, however, the Army has asked another question:

> Would greater knowledge of the power and effects of atomic bombs replace fear of the unknown with a *fear of the known* which was virtually as great?

Information on this question gathered during Exercise DESERT ROCK V shows that here, just as in the case of ordinary weapons, a gain in knowledge correlates directly with a reduction in fear. The men who ***learned the most*** from the orientation lectures at Exercise DESERT ROCK V showed the ***greatest increase in morale.***

But it was also noted that ***some facts have a negative effect*** on morale; likewise, some facts are more instrumental than others in improving attitudes. Fortunately, the negative effects can be counteracted. Men who learned anxiety-producing facts ***but who also knew reassuring facts*** were less afraid than those who merely knew some *fearful* facts or who merely knew some *cheerful* facts. This is illustrated by some items on which the men were tested.

Every troop commander who has thought at all about the possibility of sending troops to fight in atomic warfare must have wondered, for example, about the effects of radiation danger. How well will men move forward against an enemy armed with atomic bombs, if they have in mind that deadly radiation is a force which you can not see, hear, smell, taste, or feel, even when it is going through your body?

The "death-ray" has long been the staple of a science horror fiction, for the good reason that of its very nature it trades on fear of the invisible and unknown. Now, in the form of instantaneous radiation from an atomic bomb, a "death-ray" is known to exist.

The questionnaires through which HumRRO researchers studied the attitudes of 190 troops on atomic bombing showed that teaching this concept of the impalpability of radiation ***lowered morale.***

But since no humane commander would wish to send men into atomic combat in ignorance of this and other such facts, it is reassuring to report another finding: Men could learn about radiation ***and still have a lift in morale, based on greater knowledge,*** if they knew also that Geiger counters are dependable "eyes

and ears" to tell human beings where radiation is and how much danger it represents. Men who learned both of these concepts were more willing to face atomic conditions than those who learned only one of them.

The procedure in this task was to give both an attitude test and an information test to troops before they left their home camp for Nevada. It is noteworthy that their level of atomic information was quite low at this point. At Desert Rock, Nevada, they were tested again after they had been given an educational course on atomic bombs.

To determine attitudes, men were asked questions like these: "How worried are you about going on this A-bomb maneuver?" "Suppose that 10 minutes after the A-bomb exploded the troops were ordered to enter Ground Zero. How worried do you think you would be about any radiation that might still be there?"

Indirect questions are often better for determining a soldier's real reactions, so some were used. For example, "When the A-bomb goes off, how worried do you think most of the troops who are there will be about immediate radiation?"

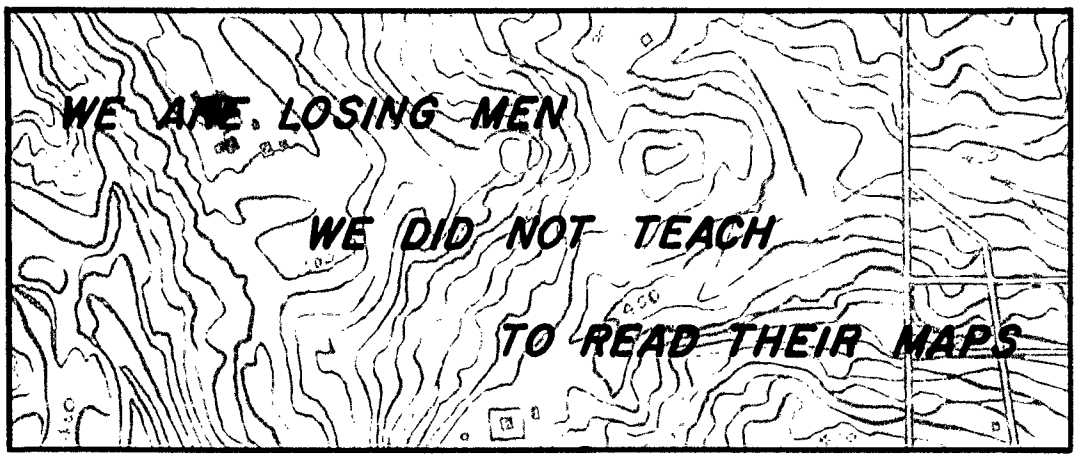
Several direct and indirect questions were asked to determine how much anxiety or fear the men felt concerning atomic maneuvers or combat.

● Of the 78 men who before the indoctrination were not anxious, only five became anxious after the gain in information. Of the 112 men who were first classified as anxious, 71 crossed over and could be classed as "not anxious" after the indoctrination.

Troops were also asked a direct question about whether they would volunteer, in this instance for a special detail to inspect houses near Ground Zero after the explosion to find if they are dangerously radioactive.

● After the indoctrination men who had learned a lot showed a 50 per cent gain in willingness to volunteer while those who had learned only a little showed a 27 per cent gain. But those men who had been good enough students to learn the facts about both the impalpability of radiation *and* the the dependability of Geiger counters showed an 81 per cent gain.

This study shows that, revolutionary though the A-bomb is, it is not so extraordinary that it upsets previous military and scientific observation that morale is raised when one substitutes for fear of the unknown a proper *respect for the known.*



"The patrol leader was the only one who could read the map. He was killed. We couldn't find our way back."

—From an interview with a Korean veteran.

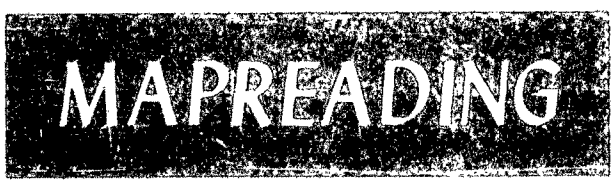
A special map-reading test designed by a HumRRO research unit has confirmed the Army conclusion that present methods of teaching map reading are not succeeding in their job of giving the average soldier the skill he needs.

In general, map training is failing, our researchers found, because it is pitched at too high a level of instruction for the soldier whose intelligence is average or below.

The accompanying graph does show a sharp rise in map-reading ability after instruction was given, and a good rate of retention of the information some months afterwards. But it also shows that men of low ability still knew less about map reading *after* instruction than did trainees of high ability *before* instruction.

Controlled studies of this old and persistent problem could not be located, so the task started with the fundamentals. Researchers first talked to military personnel teaching map reading and to combat veterans, attended various classes, and read past and present military manuals.

Then, on the basis of an Army analysis of *use of maps by enlisted men in actual operations*, the researchers determined that there were five "critical map-reading skills." The soldier needs to be able to: determine his location on the surrounding ground; orient his map; shoot the azimuth to an objective marked on his map; determine what terrain features he would encounter while following the azimuth to his objective; measure the distance to his objective.



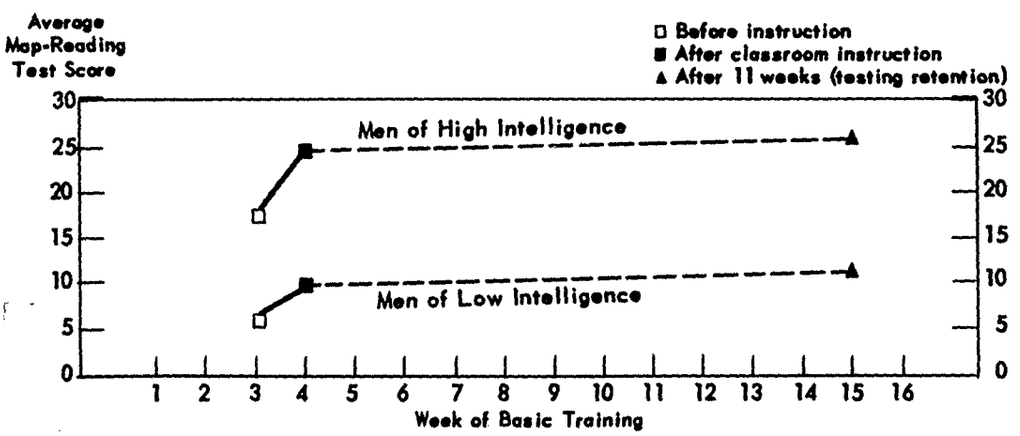
Trainees being introduced to the military use of maps often find the techniques bewildering—and many of the men are still bewildered after the regular course is finished, our research indicates. Among the suggestions for revision of training is more emphasis on field work—learning by doing.

U.S. Army Photograph

A map-reading test to determine just what the men do learn in regular map training was designed and given to trainees at Fort Knox, Ky. The men were tested before instruction, immediately after instruction, and 11 weeks after instruction. The results (see graph) suggest that ideally the man who enters the Army with some map knowledge might better receive an intensive course while the below-average soldier needs to be given a course pitched at a much lower level. If such a course were aimed directly at the five "critical skills," it is believed the majority of the men would be able to learn them.

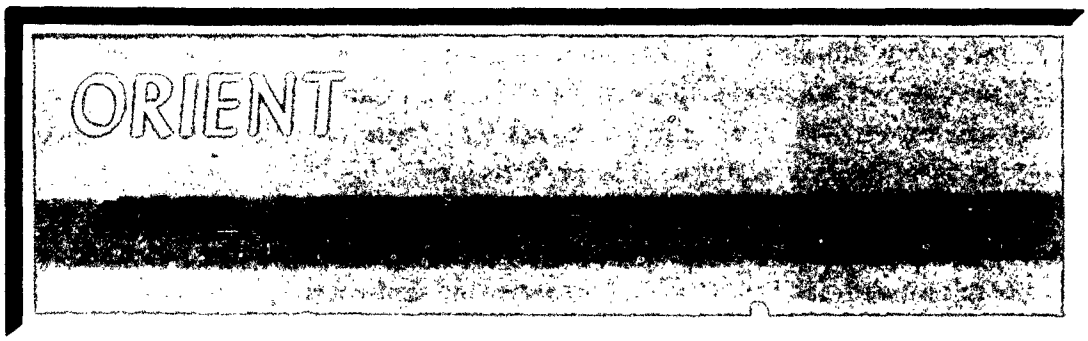
A map skills test and a map patrol test devised for this study have attracted the attention of map instructors and training inspectors because they offer practical devices for teaching inexperienced map-users.

Present Training Does Not Teach Map Reading to the Men Who Need It Most



The researchers also reported some related observations made during their study of Army map training:

> Practical field training seems preferable to classroom training for this subject matter. When the trainee, actually navigating *alone*, finds or loses his way, he gets immediate practical knowledge of results.
>
> One reason for the poor scores of low-ability men may be their failure to comprehend verbal instruction. An effort might be made to simplify the vocabulary of map reading...words such as azimuth, resection, and orientation are abstruse in their very sound, and might be replaced with easier words for the same concepts.
>
> As a training aid, the field-type tests proved popular with instructors and with the men themselves; they liked the "down-to-earth" approach.
>
> Men who did better in the classroom also did better in the field, contrary to a popular impression that men good in bookwork are not so good at working things out in the field. The correlations were so high that they suggest that in any technical problem the more basic intelligence a man has the better practical soldier he will be.



Four orientation procedures for Airborne trainees were studied to determine whether they differed in effectiveness. More than 900 men at Fort Benning, Ga., were randomly divided into four groups, each of which was treated differently in regard to pre-training orientation. One group received the regular Airborne orientation, another an orientation omitting references to fear and failure, and a third an orientation which stressed the Airborne history and traditions. One group was given no orientation.

The groups were compared on success in the Airborne course, attitudes toward the Army, information about the Airborne, and various measures of fear. Very little difference in performance or attitudes was found among the groups, including the one with no orientation. Students do appear to retain worthwhile information from a short orientation, such as that now in use.

RANGEFINDER

In 1952 Armor training officers were confronted with the problem of adding a new kind of training to an already crowded training program. Production tanks were about to come out with the new-type stereoscopic range finders. This seemed to offer at least two serious problems:

> First, how long would it take to train men to operate the new range finders? Second, how was the training to be evaluated?

HumRRO was asked by the Office of the Chief, Army Field Forces to work with The Armored School in looking into these problems.

World War II experience and research with the use of similar stereoscopic height finders in both Navy and Army antiaircraft artillery had revealed that a very low percentage of men (four to nine per cent) were trainable. Further, this experience showed that those few men who were trainable reached an acceptable level of skill after a very short practice time. But these range finders were used against point targets in the sky. Would the same results hold for a stereoscopic range finder used against ground targets? And if they do hold, how can those men who can be trained be identified ahead of time?

This study required holding over 120 trainees at Fort Knox, Ky.,

U.S. Army Photograph

How many soldiers can work the new range finder for tank gunners? HumRRO's study devised tests to determine which men will best repay training and become accurate gunners.

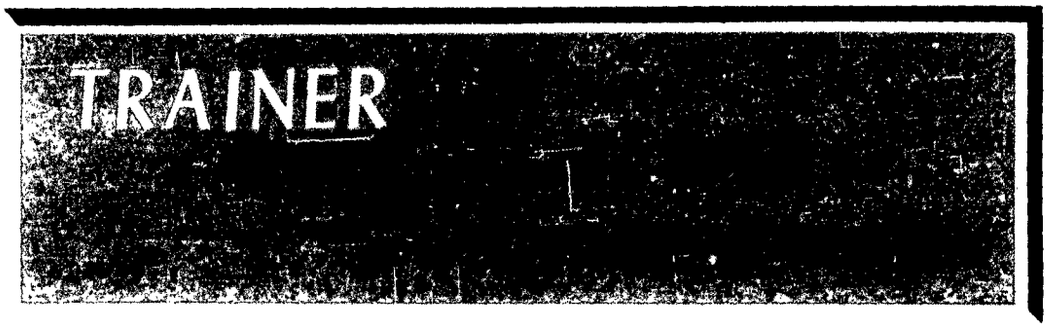
for a period of five weeks after they had completed their 16-week basic training. These men were a representative sample of Army basic trainees. They were given a battery of vision tests, but no men were rejected for training on the basis of visual test scores.

The 120 men then received an intensive range finder training course. During the practical-work phase, each trainee made 850 range settings. This is a smaller number of rangings than is called for in the ATP; however, the learning curves suggest that most of those who are going to learn will have begun to show marked progress by that time. Near the end of their training, the men were given an opportunity to fire the M47 tank, using the M12 range finder. They were also retested on the visual test battery as a double check.

The conclusions are of interest to Armor officers:

- Only a limited number of men can become proficient stereoscopic range finder operators.
- Short vision tests can be used to improve selection of these men.

A new method for scoring proficiency, which could find wide use in Armor training commands, was developed by the research staff. It has been proposed that the vision test scores and range finder proficiency scores should be entered on the soldier's Form 20, as a permanent record. With these findings Armor officers can evaluate the best men produced by their training, and commanders can place their men to ensure maximum operational effectiveness.



Do men who are being taught to drive a tank need to "learn by doing" on a real tank in all instances? Or can armor training costs be cut in this respect without lessening training effectiveness?

Three different approaches to part of the training for operating an M47 tank—approaches which used the same theoretical instruction but differed widely in the practical phase of the training—were evaluated in this task. Practical training using an inexpensive new device proved to be as effective as use of a regular tank, which is the standard procedure.

The research was originally undertaken to see how valuable a newly developed tank hull trainer might be as a training device to be used in place of real tanks in teaching armor driving and maintenance. The trainer was potentially usable in the teaching of three lessons, those dealing with starting and stopping procedures, driver's instruments and controls, and track and suspension system. While this study was under way, a much cheaper device—a wooden mock-up—was developed, and an evaluation of its effectiveness was added to the task.

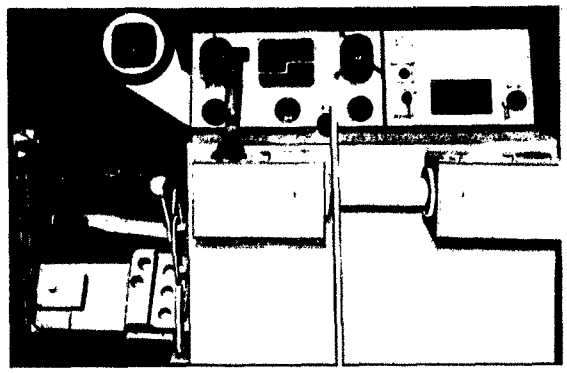
Four companies of basic trainees receiving tank driving instruction at Fort Knox, Ky., were trained as follows:

- Two groups followed the regular Army Training Program, which calls for a lecture and discussion period followed by practical training on M47 tanks. Fifteen tanks, 15 enlisted men, two officers, and quantities of gas and oil are needed in teaching each of three lessons to a company of trainees.
- One group used the tank hull trainer device, which costs approximately $10,000, in the practical phase of training after the regular ATP lecture period. Only one officer and one enlisted man are required in giving instruction by this method.
- One group, after hearing the ATP lecture, used the mock-up for its practical training. This wood and plasterboard facsimile of the tank's controls costs only $27, exclusive of labor, and can be used to teach two of the three lessons. Only one officer and one enlisted man are required to give the instruction.

After the lessons were completed, the HumRRO research unit scored the trainees taught by the three methods. Actual performance on tanks was measured for the lesson on starting and stopping procedures, which includes the

23 separate operations needed to start and stop an M47. Other tests were devised to measure what the trainees had learned on the other two lessons.

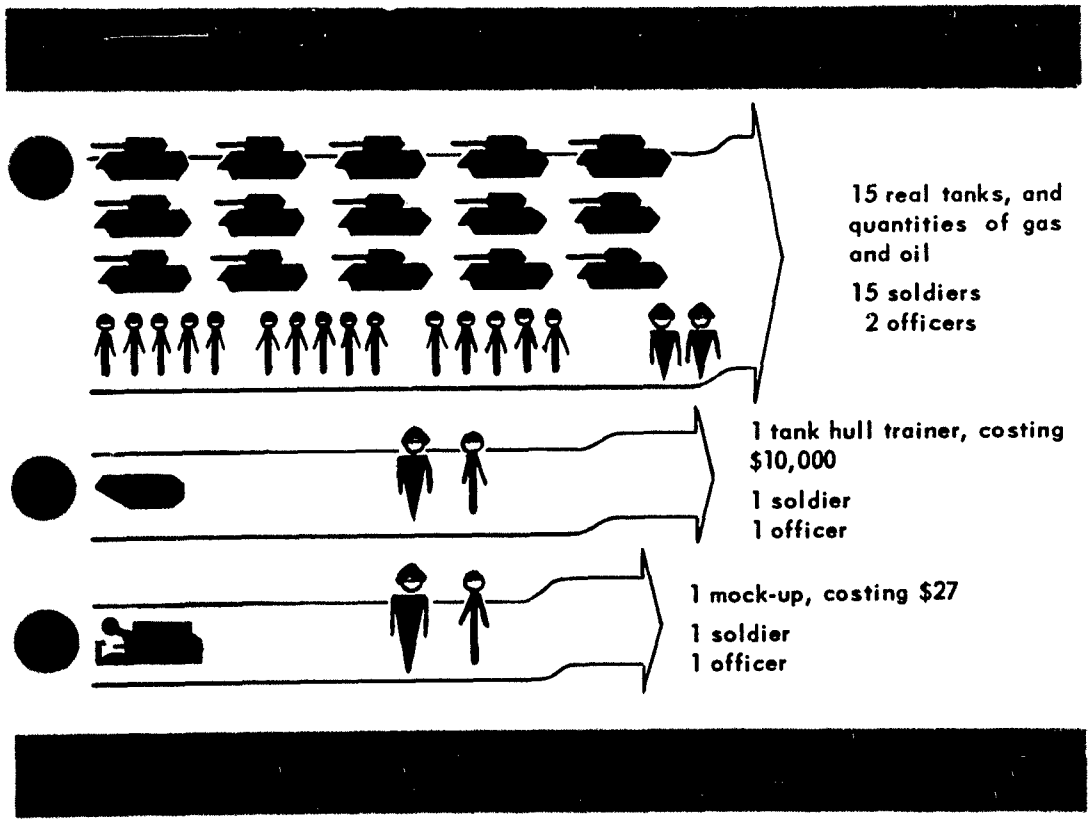
All three methods of training were found effective and virtually identical in results.



The cost of this wood and plasterboard mock-up is trifling, but HumRRO research found the mock-up just as effective as use of real tanks for some major steps in armor training.

As a result of this finding, OCAFF decided not to enter into a contract to mass-produce the trainer, saving the Army more than $2,000,000. Use of the mock-up would save operating expenses on the tanks now used in teaching these lessons, with accompanying savings in manpower.

For ECONOMY in Training COSTS



What effect does the "Fort Dix Trigger-Squeeze Exercise" have on M1 marksmanship? The Office of Chief of Army Field Forces asked all training divisions and replacement training centers to run experiments on this method. OCAFF also directed our Human Research Unit at Fort Knox to supervise the experiments on this problem at two installations.

Their results did not indicate that the trigger-squeeze exercise improved marksmanship.

As the researchers reported, this does not mean that more experienced coaches and more extended training time might not produce the anti-flinching results and consequent higher marksmanship expected from the trigger-squeeze exercise. But the HumRRO part of this research came up with parallel and conclusive results under the conditions outlined below.

At Fort Knox, study of the problem before the beginning of the experiment suggested that use of the trigger-squeeze training might be improving marksmanship scores for three different reasons:

- Because of the exercise itself.
- Because of the presence of expert coaches assisting the trainee.
- Because of extra rounds fired by the trainee during the extra training.

To isolate the possible effects of these factors, the men in four companies were divided into four different kinds of platoons, each receiving a different type of training.

Because the researchers wanted extremely precise records of marksmanship, a rigorous method of pit scoring was used. No cadremen were permitted to assist any trainee during record firing, and if a trainee fired on the wrong target he was not permitted alibi runs. These factors made it inappropriate to use the usual Army classification of men as expert, sharpshooter, etc., as the conditions

were not comparable with ordinary range training firing. These conditions were designed to make sure that each group differed from others only in the factors which were "built in" to their training.

On the known-distance range, these were the average scores of the four groups:

Men receiving typical ATP training	151
Men with ATP training **and extra rounds of firing**	142
Men with ATP training, extra rounds, **and extra coaching**	143
Men with the above **and trigger-squeeze training**	141

Thus at Fort Knox the researchers, using scientific standards of control and calculation, concluded that the differences in scoring between the groups ***were so minor as to be scientifically and practically insignificant.***

At Fort Jackson the men in four companies were divided into two groups with both receiving the same kind of training and the same amount of firing and extra coaching, except that one group was given the trigger-squeeze instruction.

The experimental group and the control group were compared on the basis of their 1000" range scores, their practice scores on the known-distance range, and their record scores on the known-distance range. As in the Fort Knox study, no significant differences were found between the groups.

The marksmanship scores in the record firing on the known-distance range were:

Company	Group Receiving Trigger-Squeeze Training	Control Group
1	84	82
2	103	104
3	81	88
4	105	103
Average	94	94

Both studies thus indicate that the trigger-squeeze exercise had no effect under typical training conditions.

WHAT SKILLS SHOULD SOLDIERS HAVE?

ARE WE TEACHING THEM?

U.S. Army Photograph

HumRRO has several research tasks now in progress on what the average soldier learns in basic infantry training. Research on teaching rifle marksmanship and map reading is discussed elsewhere in this report.

Two other studies are in progress which come at the problem of measuring the combat skills from different points of view.

The first starts with the Army Training Program and asks how much the soldier learns in terms of what he is taught under the current program.

The second starts with data gathered in Korea on the critical requirements of infantrymen and asks how well the current ATP fits a man for critical combat requirements.

* * *

PROFICIENCY

Present training of infantrymen is presumed to be good, but no one really knows just how good it is. Since many of the infantry skills cannot be tested by an ordinary paper-and-pencil test, as one can examine a potential bookkeeper, the Army has not found it easy to get an accurate measurement of one trainee against another, or one squad in comparison with another.

Recently the Army has made some progress in going beyond unstandardized tests, "stakes" and the like. But it might be said that still today the Army has not known accurately what trainees have learned.

HumRRO was asked to tackle this problem. Researchers are now giving final tryouts to field tests, based on the ATP, in which trained observers score troops on actual performance, under conditions as close to simulation of combat as safety regulations permit. First trials of the new tests were worked out with the Army Field Forces at Fort Ord, Calif., Fort Knox, Ky., Camp Breckenridge, Ky., and other installations.

Following measurement methods developed and tested in universities and industry, the program has gone through these steps:

(1) HumRRO research workers visited training installations and determined what was currently actually taught.

(2) Combat men were interviewed and battle reports analyzed to get a picture of the combat skills and an accurate idea of *what should be taught.*

(3) Proficiency test experts studied the training literature and, in partnership with military instructors, devised test items of the crucial skills.

(4) Twenty separate tests of essential military subjects and skills were combined into a test-battery and administered to large groups of men at the end of their light infantry training. Individual tests which did not adequately measure the trainee's skill and knowledge were revised or replaced.

The test, now known as the Individual Proficiency Test for Infantry (IPTI), will ultimately be given at a wide sample of infantry training centers.

Properly used and evaluated, without overemphasis or underemphasis upon what a proficiency test can measure, this yardstick of combat skills could be of far-reaching importance.

- The test can give an accurate picture of what a soldier learns and whether he remembers it months or years afterward.
- Knowledge of what is being learned will sharpen teaching methods.
- The test could lead to more standardization of training, within a division or from division to division within the Army. It would also afford a rough measure of the efficiency of training units.

Science is Measurement . . .

The two HumRRO scientists at left, studying infantry proficiency in the field, symbolize the scientific method: they are testing an idea through experiment, observation, and measurement.

U.S. Army Photograph

Individual Proficiency Test: Infantry (IPTI)

The essential military information needed by the combat infantry soldier is represented in the tests developed in this research. The general subjects, combat skills, and weapons skills which were identified as those which a man should learn in basic training are:

Basic Combat Training (8 weeks)

- First Aid
- Squad Formations
- Signal Communications
- Observation & Military Intelligence
- Range Estimation
- Individual Tactics
- Care of Clothing & Equipment
- Map Reading
- Compass
- Mines & Booby Traps
- Field Fortifications
- M1 Rifle—Assembly & Disassembly
- M1 Rifle—Sight Adjustment
- Light Machine Gun—Assembly & Disassembly
- Light Machine Gun—Sight Setting
- Rocket Launcher
- Squad Tactics

Light Infantry Training (16 weeks)

The basic combat tests plus the following:

- Automatic Rifle—Assembly & Disassembly
- Automatic Rifle—Immediate Action
- 60 mm. Mortar

○ If the IPTI is ultimately adopted on an Army-wide scale, consideration might be given to the possibility of introducing a program of ***graduation by proficiency.*** This presents administrative problems, but it would deliver the most capable recruits to combat units more swiftly. At the same time greater attention could be given to the training of the slow recruits, ensuring that they do not go overseas without the basic ability to help themselves and be a working part of their platoon.

* * *

Another program is designed to measure and improve the level of basic and advanced training of light weapons infantry. The goal is a test to serve as an accurate check on whether men are ready for combat—not by giving them an examination, but by observing their behavior on field problems, checking their actual response to dozens of combat procedures.

The check-lists of what a combat soldier should learn, remember, and act upon are based on previous study by the American Institute of Research of 10,000 combat "incidents," in Korea and elsewhere.

In the first phase of this study, done at Fort Campbell, Ky., use of the preliminary form of the check-list indicates a serious situation:

> "The general level of performance is low enough to warrant two conclusions: (1) trainees do not, at the conclusion of the 16-week program, have adequate command of the basic combat skills, and (2) trainees are not motivated to perform well on problems of this type. A direct relationship between effective performance and amount of training is noted for some behaviors, but for others the opposite is true."

For example, researchers noted whether troops failed to ask questions after an incomplete briefing. At the end of one week's training, as might be expected, troops did not ask a single question. Their failure on this was 100 per cent. But at the eight-weeks' training point, their score was still 99 per cent failure, and at the end of 15 weeks, 97 per cent.

On "forward assembly," after a week's training 100 per cent failed to check or clean their rifles. After 15 weeks 85 per cent still failed. On maintaining a security watch while digging, from a 100 per cent failure at the beginning the proportion fell to 35 per cent.

An example of faulty behavior which actually ***increased*** in frequency was "Making self visible to enemy observation." At the outset 39 per cent made this error, and after 15 weeks of training 49 per cent made this error.

Some other scores were as follows:

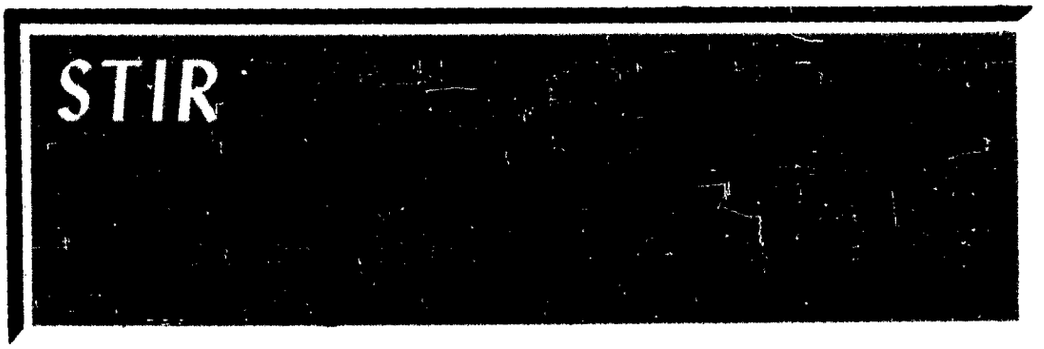
Type of Specific Action Observed	1 Week Training	15 Weeks Training
Chose position with poor field of fire	54%	23%
Made too much noise	24	19
Exposed self to enemy fire	54	29
Got into own squad's line of fire	14	3
Failed to observe to flanks	93	78

The first goal of this research has already been achieved: development of a combat readiness check, a measure of training of infantrymen *according to their practical use of skills known to be of importance to survival and effective action against the enemy.*

In the second phase, an experiment now under way at Fort Dix, N.J., different companies are being trained under the standard and the revised ATPs, to see whether training can be altered to make more soldiers really combat-ready after 16 weeks of training.

Results indicate that an accurate performance test, which will pinpoint deficiencies and merits in the training program, is being perfected.

U.S. Army Photograph



With the rise in the AWOL rate to as high as 2.4 per cent—one out of 50 soldiers—in 1951, many elements of the Army have been endeavoring to understand and remedy the problem of delinquency. The Provost Marshal General requested HumRRO to survey the factors which might be responsible for delinquency. Particular emphasis was placed on the study of AWOL, which accounts for a high percentage of the offenses.

After designing a research program, HumRRO teams administered intensive questionnaires to more than 600 men in stockades, and to twice as many "average" soldiers in regular duty status in six Army camps. In addition, 300 men were interviewed. Delinquents were compared with non-delinquents on such factors as home life, reasons for going into the Army, and opinions of the Army in particular and in general.

> The main conclusion was: No one factor could be singled out as responsible for a majority of delinquent behavior.

Delinquency in a man's Army career appeared to be ***most highly related to his personal characteristics*** at the time he entered the Army. In general, delinquents had less education than the non-problem soldier, came from backgrounds with fewer economic and social advantages, and had had a less happy home and family life. They had been ***far more delinquent in civil life*** than had the average soldier.

The researchers did not find a clear pattern of delinquency, an "AWOL type," although they believe it might be possible some day to design tests and behavior studies which would enable the Army to predict what groups of men would furnish the highest rate of delinquents. The data indicate that the decisive factor in the situation is not Army discipline or conditions but the personality of the delinquent—characteristics which are set before he gets into the Army. The delinquents do not show any special dissatisfaction with Army life.

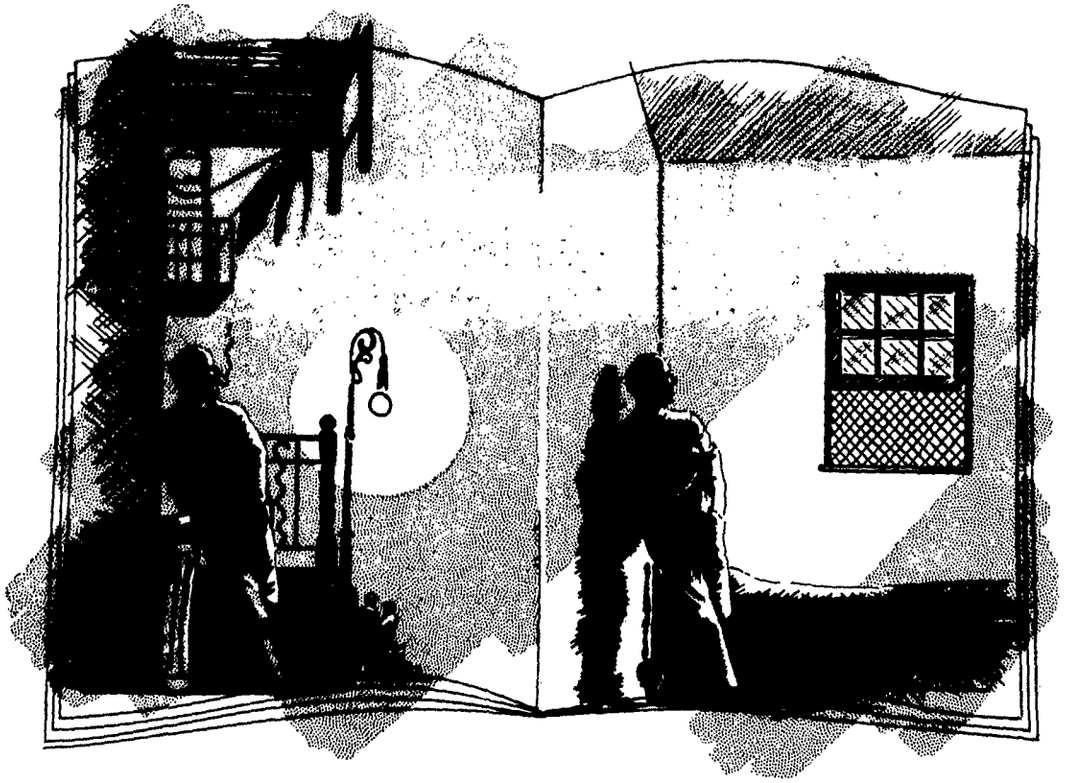
Whether these conclusions apply to AWOLs from combat situations is not clear. Some studies indicate that shipping delinquents directly from stockades does not mean they will show a correspondingly high AWOL rate after they get overseas.

* * *

This study did not (and was not expected to) find any final answer for the rise in AWOL rates. It did produce some negative results: Some factors did not turn out to be as expected in the AWOL situation.

- For example, it had been thought that the increasing number of draftees coming into the Army might be a factor in the AWOL rise. However, it was found that 63 per cent of the men in stockades were volunteers, while outside only 50 per cent were volunteers. *Thus volunteers were a larger proportion, not a smaller proportion, of the offenders than of the regular troops.*
- A change in regulations on payment of apprehension costs, now requiring the AWOL soldier to pay *only* his own expenses, apparently has not had a decisive effect on the delinquency rate.

His civilian background...



...is a key to the AWOL soldier

○ The automatic transfer theory—that a soldier may go AWOL for more than 29 days in order to be automatically removed from a unit he wishes to leave—is neither ruled out nor substantiated by the present study.

○ Over a third of the delinquent group could be classified as "bucking for a Bad Conduct Discharge," but more study would be needed to determine how many men really go over the hill with this kind of "desertion" in mind.

○ Avoidance of being shipped to combat does not, from this study alone, appear to be an important factor in the situation, but this point could not be judged very well from the data available.

* * *

Not always, but more frequently than their law-abiding comrades, the delinquents were characterized by:

Aggressive Behavior—They were quick to anger, making special efforts to be unpleasant to people whom they did not like.

Escapist Tendencies—Besides breaking regulations, they "escaped" from Army discipline through more instances of drunkenness, sick calls, and job changes.

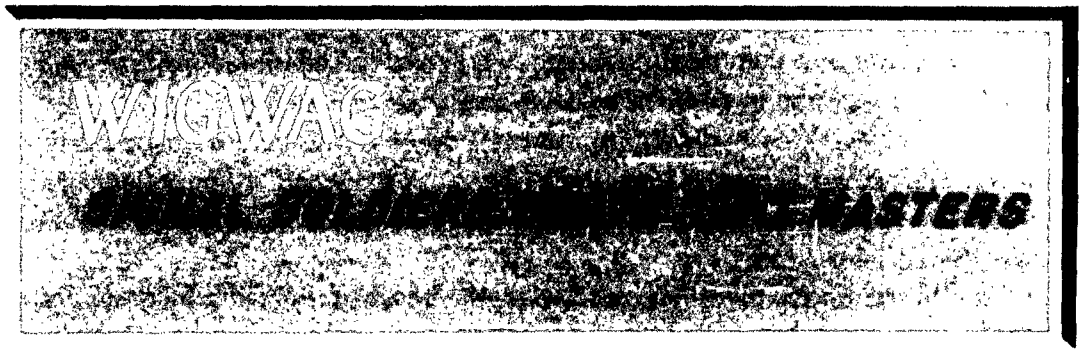
Lack of Long-Range Goals—The delinquents did not save money or buy bonds as often as the average soldier; they tended to spend their pay in the first few days after receipt, and had a philosophy, "Do what you want to today, and let tomorrow take care of itself."

In the middle of World War II, in a similar study, a survey team asked this question of soldiers, "If it were up to you to choose, do you think you could do more for your country as a soldier or a war worker?" Among AWOLs, 73 per cent thought they would be more valuable as war workers; among privates of six months' experience and over, the proportion fell to 59 per cent, and among non-coms to 41 per cent.

In HumRRO's survey, a similar question was asked. The results cannot be compared directly, since the question was somewhat different and was asked of different kinds of troops—but here 64 per cent of the AWOLs and 36 per cent of the other soldiers said that they thought they would be more useful to their country outside the Army.

There can be many reasons for a soldier saying this, and a man's personal desires undoubtedly sway his judgment of his proper place in the war effort. But the conclusion which is applicable here is that ***troops' commitment to Army goals is not much different today than it was in World War II.***

This study turned out to be like a reconnaissance patrol which reports that it did not make conclusive contact with the enemy. It served a useful purpose by probing some places where we thought the "enemy" might be, and conclusively demonstrating that we have to look elsewhere.



The basic function of a school is to provide a situation favorable to learning. All schools within the Army differ from all schools outside in that their students are also soldiers—the students have two missions to perform, and sometimes there are conflicts.

This survey's specific purpose was to determine whether, ***from the point of view of the enlisted student,*** the Signal School at Fort Monmouth, N. J., provided a situation favorable to learning.

The conflicts between the two roles—that of soldier and that of technical student—were found to be serious at the Signal School, and the research done there may well have application for administrators of similar Army schools in other services.

For example, the survey team reported:

> "One of the most striking differences between conventional schools and Army schools is that in the latter students are REQUIRED to lose time from their classes...they must perform the usual company duties, KP, CQ, policing details, etc. These must be done whether or not they interfere with classroom work, and since the companies are not closely coordinated...they seem to interfere more often than not.
>
> "....time lost in this way might amount to as much as ten or fifteen per cent of all the time available...concentrated into blocks of an entire nine-hour day, the loss may result in serious gaps in a man's training. The individual student is supposed to be able to make up the time, but only now and then will instructor time permit him to do so satisfactorily."

Men who have had more experience as students, and have become familiar with civilian patterns of work and study, do not adapt as well to the combined duties of soldier and student as do men who are new to both. The report stated:

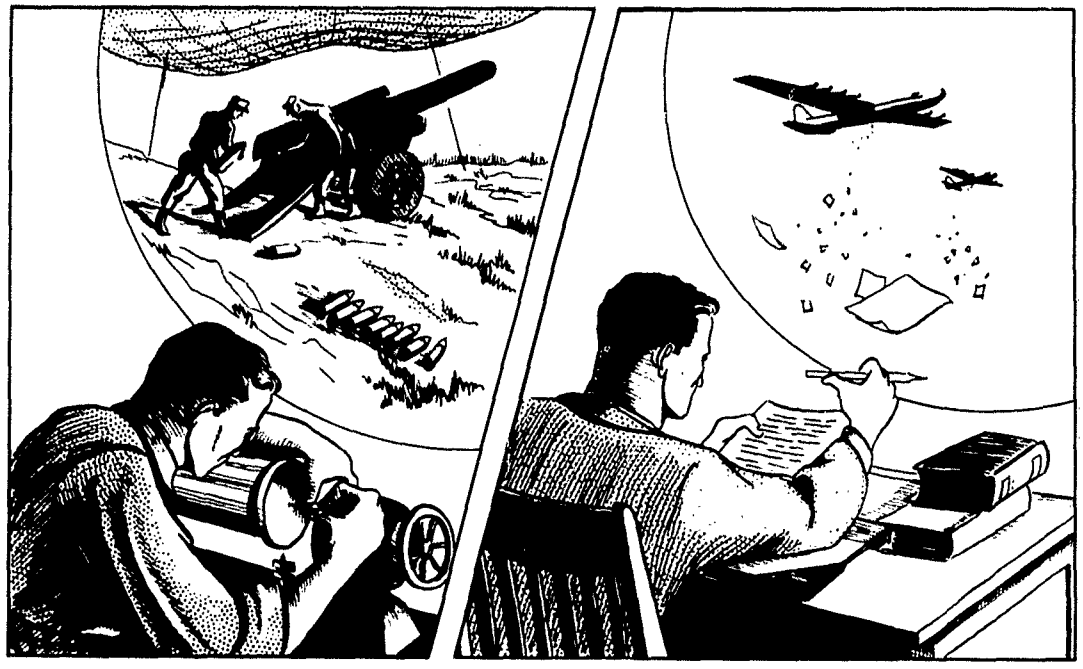
> "It is, apparently, the more highly qualified men who suffer most from this conflict, for they complain most....They are also the men who are likely to be the most interested in the training, but the least favorably disposed toward the Army and an Army career."

Fortunately, the survey found, the selection of men for Signal School worked excellently, and most students were really interested in overcoming obstacles and learning to be good soldiers and good technicians.

The Signal School was particularly interested in learning the effects of changes which had recently been made there. The School had condensed the courses, lengthened the school day, increased the number of classes, and used more enlisted instructors.

On the whole, the study concluded, the school provided a favorable situation, though not perhaps the best, for men who were technically minded and eager to get more training of this type. The high demands the school made of the trainee—requiring him to be both student and soldier—would not be met, it is believed, without a continuing supply of students especially interested in technical work.

Major changes in the school's organization, including closer integration of classroom and outside duties, have taken place since the survey. Therefore the detailed examinations of morale made in the survey may or may not be true of the school today but will be useful to other schools with problems similar to those of the Signal School in May of 1952.



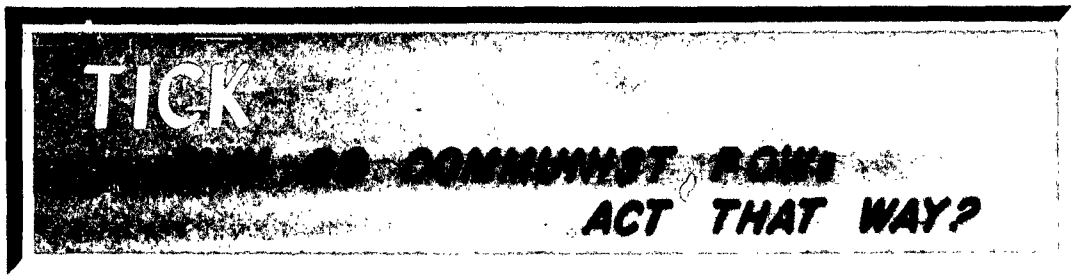
HumRRO's Role in Psychological Warfare...

President Eisenhower has said that "psychological warfare" is a misnomer—and psychologists are the first to agree.

In modern war the morale of enemy troops and civilians is a primary target, as it has been in the past, but this kind of attack upon the enemy is not the exclusive domain of students and practitioners of psychology, nor of any other field of specialized knowledge. And modern students of psychological warfare emphasize that even such classics of their operation as the loudspeakers in advance tanks of Patton's Third Army would have had no real effect if they had not gone in among tanks which followed their broadcasts with heavy and damaging fire!

Preparation of material for radio and leaflet barrages against the enemy is a task for units in the field, aligned perfectly with military operations. HumRRO's contribution to this phase of military activities is comparable to the role war production at home plays to artillery fire at the front.

Here the psychologist and others representing social science fields prepare the kind of studies on which strategic psychological warfare is based; these concepts form the foundation on which tactics can be worked out. This often is somewhat of an academic task, in the sense that it calls for scholarly minds and the resources of libraries and universities. The need, however, is anything but academic.



"We ought to learn more about what makes Communists tick."

—General Mark Clark in Korea

From this remark of the Commanding General, made to a psychological warfare officer, came the HumRRO task which studied Communist motivation and organization among Chinese and North Korean soldiers.

This program, carried out through 120 intensive interviews—some of them lasting 15 to 18 hours—with Chinese and North Korean prisoners of war, will result in two or more published reports. In addition, members of the research team have given several oral briefings to the Office of the Chief of Psychological Warfare, the Operations Coordinating Board, and the Department of State.

Here was the setting of the problem explored by the TICK investigators:

The UN Command had in its custody more than 100,000 men who had been subject to Communist discipline in China and North Korea—some almost exclusively as soldiers, some chiefly in civilian roles, some for as long as a dozen years, some for as little as a year.

Questions:

- Before internment as prisoners, how did these people adapt to Communist purposes and the pervasive network of Communist controls?
- Which groups among them, therefore, are most vulnerable to what kinds of psychological warfare attacks?

Most of the POWs were still under Communist discipline exercised surreptitiously within the prison-camp compounds. The "second front" that these prisoners created was, in fact, the needle that stimulated the decision to embark upon a formal research project.

Questions:

- What accounts for the unprecedented behavior of these POWs? What part was played by traditional Chinese and Korean culture, by the frustrations of incarceration shared by prisoners everywhere, by specifically Communist doctrine and organizational devices?
- Supplementing the Army's own efforts to learn the lessons of this experience, what can be learned from such a study concerning future handling of POWs from oriental Communist armed forces?

The reports will not purport to tell the whole story of just what makes Communists tick!—and this summary will not attempt to anticipate the fuller reports. But the operation provided knowledge that was immediately useful in the field, and the technical reports will be of more long-range value.

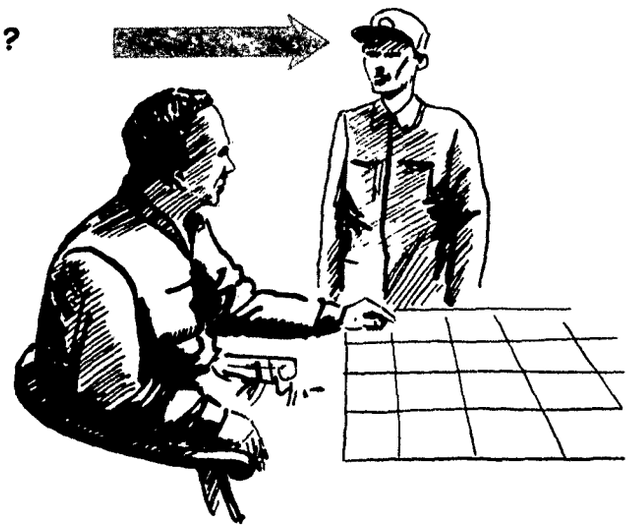
Some preliminary conclusions are:

(1) "Brain-washing" can be analyzed and understood. By the same token, countermeasures can be devised. Communist techniques of indoctrination, surveillance, and utilization of individuals are utterly foreign to our experience, but they and their effects upon individuals can be understood provided they are viewed as a unified, calculated whole. The greatest difficulty is in translating analytic understanding into language that makes sense in terms of American experience.

(2) Communist parties and Communist-controlled societies are protected from apathy, "reactionary tendencies," and even "mellowing" by a remarkably ingenious system of "self-corrective" devices. To the arsenal of such devices the Chinese Communist movement has made important additions with its techniques of "thought-changing" and its intensive and deep-probing use of public confession, "self-criticism," and "mutual criticism." But these new techniques ***also constitute a source of weakness*** so far as they intensify the atmosphere of mutual suspicion and individual isolation and anxiety.

(3) The interviews provided a "prisoner's-eye-view" of the developments which led up to the internationally embarrassing incidents in the POW camps. They showed that if the UN Command had been forewarned by adequate intelligence inside the camps the incidents could have been forestalled.

WHAT **MAKES HIM TICK?**



GAMBIT

WANTED: Volunteers for extended duty behind enemy lines; must be diplomats as well as fighters, ambassadors-of-good-will as well as jumpers; dependability, initiative, patience essential; familiarity with foreign languages and areas desirable; knowledge of demolitions, weapons, radio important but can be trained. Apply Special Forces Group, Fort Bragg, N.C.

If the Army recruited in the classified columns, this ad might have appeared in the morning paper. Special Forces, a part of Army Psychological Warfare, is faced with the job of training picked volunteers to work with guerrilla outfits in time of war. The problem brought to HumRRO in March, 1953, was not how to get more recruits, but how to weed out probable failures before they wasted valuable training time or before they were dropped in a combat zone.

Here's how HumRRO tackled the problem.

● A preliminary survey was made of men, in and out of service, who are veterans of the type of operations for which Special Forces men are trained. In retelling their experiences, they were able to supply opinions of what makes a man good in this kind of work. Five main qualifications could be recognized:

* Technical competence and skill
* Dependability
* Initiative
* Patience
* An over-all way of behaving, typical of a Special Forces man

● Using these qualifications, the researchers decided to classify men by a form of test—a special test called "the buddy-rating scale." It has been found that if you give a number of men scientifically designed questions to answer about their comrades in an outfit, you can get an excellent picture of the various men. Soldiers who live in close quarters with each other make very accurate judgments; and results of this kind of judgment have been checked many times against actual performance, and found to coincide. This kind of psychological election has been used on a wide scale both in and out of the Army.

Five questions, in printed booklet form, were answered by about 400 of the most experienced officers and enlisted men of the 10th Special Forces Group (Abn) at Fort Bragg, with secrecy and anonymity guaranteed.

For example, here is the first question, quoted from the booklet:

> "If you were going on a dangerous and important Special Forces mission which depended on the technical competence and skill of the team members, who would you want to take with you? Think of at least three men you would pick, and print their names and ranks in the first block of lines on the next page.
>
> "Now think of at least three men you would not want to take with you because their technical competence and skill does not measure up to what you would want from your team. Print these names and ranks in the second block of lines on the next page.
>
> "Lastly, think of two or three men you would not choose, but would not object to if they came along. Print these names and ranks in the third block of lines on the next page."

Answers to these questions made it possible to classify many of the personnel of the 10th Group in one of three ways:

* Superior, a highly desirable addition to a Special Forces team
* Average
* Inferior, not the kind of man for a Special Forces job

The final parts of the HumRRO research plan could now be put into effect: (1) to locate the sources of the differences between the superior and the inferior men; (2) with this information, to devise a questionnaire that would reveal which volunteers were most like the best men, and which were most like the worst men in Special Forces.

This part of the work started with a guess that the best men were different from the worst men in either or both of two ways. First, the best men probably had experience in or knew more about such things as demolitions, light and heavy weapons, subversion techniques, and other subjects vital to carrying out Special Forces missions. Second, the best men probably were different from the worst ones in non-trainable things—attitudes, interests, personal characteristics, even personal and family backgrounds.

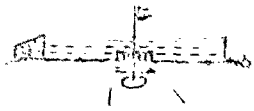
The researchers decided to concentrate first on what was considered the tougher problem, and probably the more rewarding one: the non-trainable differences, the attributes a man brought into Special Forces that could not be changed.

From the data secured by intensive questioning of nearly 300 men who had been identified as the best and the worst men, there emerged the profile of the good Special Forces man. In important ways he is different from the man who will probably fail in Special Forces work.

For example, in general he is

—at least 23 years old
—married
—likely to have been brought up in one geographical area

In school, he



—attended high school
—played on intramural and varsity teams, especially football
—received average or better grades

Socially, he

—is not much of a gambler
—enjoys drinking frequently, but mostly socially, rarely to excess
—enjoys reading adventure books, dislikes reading comic books
—has a satisfactory amount of sex relations

On the job, he

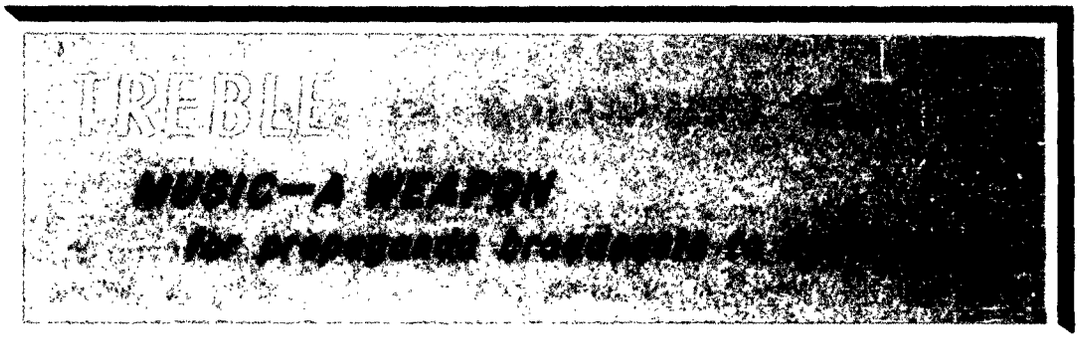
—is very satisfied with being in Special Forces rather than some other part of the Army
—is ready for combat at any time, and thinks he will do a good job in combat
—rates himself superior in skill, initiative, dependability

Considerable insight has been gained concerning the characteristics of the kind of man who will do best in Special Forces. As a result:

- Some of the pertinent findings were turned over to the Office of the Chief of Psychological Warfare to help in rewriting the Special Regulation covering qualifications for admission to Special Forces.
- A test for screening volunteers for Special Forces will be given to the Army as soon as possible.

Research is also going forward on the study of the precise trainable skills and knowledge which make good SF operators. The test for screening volunteers also will be improved by checking test scores with actual performance of men on maneuvers.

This Task has been a straightforward application of psychological testing procedures to what is essentially a personnel problem.



What specific music would be most effective in U. S. broadcasts to Russia and to selected satellite countries? And what are the facets of pride and sentiment that need to be considered in choosing music for this purpose?

The problem might seem simple to one unfamiliar with differences in national tastes in music, and in particular with the decided stand the Communists have taken towards certain kinds of music. This is not simply a matter of playing "Russian music."

The Office of the Chief of Psychological Warfare asked HumRRO to provide information about the most appropriate musical compositions to be used in propaganda broadcasts to the USSR, Czechoslovakia, Poland, Hungary, Rumania, Bulgaria, Albania, and Yugoslavia.

This research has now produced a report-handbook and a complete index card system which give

- A study of where the Communists are most vulnerable to U.S. broadcasts of music that plays on the sentiments of the people they control. . . .
- A catalogue of appropriate compositions, down to the old patriotic and religious music that is now banned by the Communists. . . .
- An insight into methods used by Communists in their attempt to control free expression in music. . . .
- A handbook of music information on each target country for persons planning broadcasts.

In this field the main weaknesses of the Communists lie in the fact that their official control of music is one more evidence of the regime's attitude toward all free expression, and in the failure of the Communist-approved musical diet to satisfy certain groups of the population. Important propaganda opportunities for the United States are afforded, too, by the ability of music to suggest certain ideas and convey certain attitudes, without being readily identifiable as propaganda.

More Results Are Beginning to Come In...

The tasks already reported are some of those on which research was begun at Army request during an early stage in HumRRO's organization. As the requests from the Army have multiplied and the research program has expanded, tasks have been grouped in general areas of study—for example, problems bearing on infantry training, or those involved in improving leadership. Preliminary results for many of these tasks are now being analyzed; on others, the planning state is now being followed by field work. Among the tasks on which fuller reports will be made within the next few months are the following:

★ *INFANTRY TRAINING*

SQUADTRAIN: An experimental method of infantry-squad training emphasizes the troops' active participation in their instruction. Proficiency measures indicate the experimental training programs are superior to the standard ATP.

APTITUDE: Will high-aptitude basic trainees help low-aptitude men in learning basic training skills? In an experimental company, squads are made up of high-low, mixed, and low-only men. How well each type squad is learning is being measured.

FIGHTER: Tests administered to soldiers who have had combat experience in Korea should help determine which personal traits mark the difference between good and poor fighters. Results to date indicate that there are significant relations between test scores, including Aptitude Area I, and fighting performance.

★ *ARMORED TRAINING*

GUNNERY: A tank-gunnery training method in which .30-caliber machine-gun ammunition is substituted for 90mm service ammunition is being investigated. A successful substitution of this type would permit large savings in ammunition costs without loss of training effectiveness.

★ *AIRBORNE TRAINING*

VOLAIR: Airborne volunteers are being compared with other soldiers as to background, attitudes, and personal traits to pick out qualities that predict success or failure in training. Some personality characteristics that seem connected with success or failure have been identified, and important attitude and personality differences have been revealed.

★ *SPECIAL TRAINING FOR MARGINAL INDUCTEES*

READ: Appraisal of the Army's Basic Education Program for illiterate soldiers as a morale-building element is still in a comparatively early stage; however, available evidence suggests that in the long run the BEP can be expected to have a favorable effect on troop morale.

★ THE ARMY AS A CAREER

ATTREEN: To suggest ways in which the career attractiveness of the Army can be improved, information is being gathered as to why enlisted men do or do not re-enlist. It appears, at the present stage of research, that the major sources of dissatisfaction are leadership, discipline, and working relationships, rather than pay levels.

★ LEADERSHIP TRAINING—OFFICERS AND ENLISTED MEN

OCS: Since a large proportion of failures and resignations from OCS are presumed to be related to lack of motivation a "military-interest blank" that can be used by each branch and corps of the Army as an advance measure of men's motivation for officer training is being constructed.

SQUADLEADER: Comparison of the personal qualities and practices of squad leaders, who were identified in Korea by their superiors and men who served with them as being effective or relatively ineffective, is near completion. This study should help to reduce the rate of failure in training and to develop better leaders.

★ ELECTRONIC TRAINING

RADAR: The on-the-job performance of M-33 radar operators and maintenance men in the Eastern AA Command is being analyzed to discover what is essential and what is "nice to know." Detailed analyses are being made of the kinds of malfunctions and of actions taken and by whom. Suggestions for streamlining long training programs in radar will result. This research has important applications for all electronics training in the Army.

★ MASS-TRAINING MEDIUM

TV: Selected subjects in basic training have been presented by the same instructors in classroom and on closed current TV equipment, in cooperation with the Signal School at Camp Gordon. The effectiveness of TV instruction, which maximizes the use of the best instructors, is being evaluated for possible use in mobilization.

★ RETENTION OF MILITARY SKILLS

KNOWHOLD and SKILLHOLD: How rapidly personnel on active duty and reserve status forget essential information and skill learned in basic training is being measured. Minimum refresher training can then be planned on subjects most rapidly forgotten.

PRESENT ORGANIZATION OF HumRRO RESEARCH

The work of HumRRO is supported under three Army R&D projects. A tentative division of work into subprojects has been made. Studies which have been described in this report are tasks under these subprojects. To give an idea of the scope of HumRRO research, the present projects and subprojects are listed below.

Project No. 095 30 000–Training Methods Research

Individual military training
Military group training
Technical training
Armored training
Instructional methods
Airborne training

Project No. 095 50 000–Motivation, Morale and Leadership Research

Individual morale and motivation
Group motivation and morale
Army career and recruitment
Military delinquency
Racial groups in the Army
Fear and stress studies
Adjustment to military life
Military leadership

Project No. 096 00 000–Psychological and Unconventional Warfare Research

Target vulnerabilities
Communication techniques and practices
Special psywar techniques
Evaluation of intercultural contact, soldiers and nationals
Psywar training research
Military government research
Research on psywar methods

FINAL REPORTS PUBLISHED BY HumRRO AS OF 31 DECEMBER 1953

TECHNICAL REPORTS

1. *DESERT ROCK I: A Psychological Study of Troops Reactions to an Atomic Explosion,* by Peter A. Bordes *et al.* Motivation, Morale, and Leadership Division, February 1953 (CONFIDENTIAL).
2. *DESERT ROCK IV: Reactions of an Armored Infantry Battalion to an Atomic Bomb Maneuver.* Motivation, Morale, and Leadership Division, August 1953 (CONFIDENTIAL).

SPECIAL REPORTS

1. *Survey of the Educational Program of the Artillery School.* Training Methods Division, December 1952.
2. *Psychological Warfare Research: A Long Range Program.* Psychological Warfare Division, March 1953 (SECRET).
3. *Medical Officers' Opinions on Professional and Personal Problems of Army Service.* A Joint Report prepared by the Research Division, Office of Armed Forces Information and Education, Department of Defense and the Motivation, Morale, and Leadership Division, Human Resources Research Office, July 1953.

RESEARCH MEMORANDA

1. *Effects of Four Orientation Procedures on Airborne Trainees.* Motivation, Morale, and Leadership Division, October 1953.
2. *Attitude and Information Patterns of OCS Eligibles,* by Milton G. Holmen and Robert V. Katter. AFF Human Research Unit No. 2, October 1953.
3. *The Relationship Between 1000" Range and Known-Distance Range Rifle Scores,* by Frank J. McGuigan. Human Research Unit No. 1, OCAFF, December 1953.

ORGANIZATION CHART

The current organization chart of HumRRO, showing the Research Divisions in Washington and the Human Research Units, OCAFF, is shown on the opposite page. These relationships were developed in accordance with AR 70-25, dated 23 December 1952.

HUMAN RESOURCES RESEARCH OFFICE AND HUMAN RESEARCH UNITS, OCAFF